

(August, 2000)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED

OMB No. 1004- 0137

Expires: July 31, 2010

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other Instructions on page 2.

1. Type of Well ☒ Oil Well ☐ Gas Well ☐ Other		5. Lease Serial No. NMNM118720
2. Name of Operator COG Operating LLC		6. If Indian, Allottee, or Tribe Name
3a. Address 2208 W. Main Street Artesia, NM 88210	3b. Phone No. (include area code) 575-748-6940	7. If Unit or CA. Agreement Name and/or No.
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) 330' FNL & 660' FEL, Unit A (NENE) Sec5-T19S-R32E 380' FNL & 330' FWL, Unit D (NWNW) Sec5-T19S-R32E		8. Well Name and No. Patterson B-52 Federal #2H
Lat. Long.		9. API Well No. 30-025-38969
		10. Field and Pool, or Exploratory Area Lusk; Bone Spring, North
		11. County or Parish, State Lea County NM

12. CHECK APPROPRIATE BOX(S) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/ Resume)	☐ Water Shut-off
☐ Subsequent Report	☐ Altering Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other
	☐ Change Plans	☐ Plug and abandon	☐ Temporarily Abandon	BHL Change
	☐ Convert to Injection	☐ Plug back	☐ Water Disposal	

13. Describe Proposed or Completed Operation (clearly state all pertinent details including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths or pertinent markers and sands. Attach the Bond under which the work will performed or provide the Bond No. on file with the BLM/ BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notice shall be filed only after all requirements, including reclamantion, have been completed, and the operator has determined that the site is ready for final inspection.)

COG Operating LLC respectfully request the BHL changes for the original approved APD.

X From: 330' FNL & 660' FEL
* To: 380' FNL & 330' FWL *

Drill a 7 7/8" hole H 1150' - 13,448' (9360' TVD)
Run 5 1/2" 17# P110 LTC to 13,448"

CMT with the following:

1st Stag: 450 SX of class H & acid soluble @ 15.0 ppg/2.62 cuft/sx

2nd Stag: Lead: 950 sx class H + Bintonite + HALAD-322 + HR-800 @ 12.7 ppg/1.89 cuft/sx

Tail: 100 sx class H 15.6 ppg/1.19 cuft/sx

TOC @ 950' DVT @ 8890'

14. I hereby certify that the foregoing is true and correct.

Name (Printed/ Typed)

Mayte Reyes

Title: Regulatory Analyst

Signature:

Date: 4/18/11

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by:

Title:

Conditions of approval, if any are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Office:

BUREAU OF LAND MANAGEMENT
CARLSBAD FIELD OFFICE

PETROLEUM ENGINEER
MAY 09 2011

Title 18 U.S.C. Section 1001 AND Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on page 2)

HOBBS OCD

State of New Mexico

DISTRICT I

1625 N. FRENCH DR., HOBBS, NM 88240

Energy, Minerals and Natural Resources Department

MAY 06 2011

Form C-102

DISTRICT II

1301 W. GRAND AVENUE, ARTESIA, NM 88210

OIL CONSERVATION DIVISION

1220 SOUTH ST. FRANCIS DR.
Santa Fe, New Mexico 87505

Submit to Appropriate District Office

RECEIVED

State Lease - 4 Copies

Fee Lease - 3 Copies

DISTRICT III

1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV

1220 S. ST. FRANCIS DR., SANTA FE, NM 87505

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number	Pool Code	Pool Name
Property Code	Property Name Patterson B-52 FEDERAL	Well Number 2H
OGRID No.	Operator Name COG OPERATING, LLC	Elevation 3676'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	5	19-S	32-E		330	NORTH	660	EAST	LEA

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	5	19-S	32-E		380	NORTH	330	WEST	LEA

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

N:617573.9 E:665129.2 GRID AZ. -269°10'08" HORZ. DIST. -4293.9' N:617581.1 E:667764.5 S.L. 660' SEE DETAIL N:617589.0 E:670411.6 N:616269.0 E:670420.9 N:616253.1 E:665137.9 DETAIL 3676.4' 3678.7' 3670.5' 3671.2' 600' 600' GEODETIC COORDINATES NAD 27 NME SURFACE LOCATION Y=617257.2 N X=669754.1 E LAT.=32.695724° N LONG.=103.781527° W BOTTOM HOLE LOCATION Y=617194.9 N X=665461.6 E	OPERATOR CERTIFICATION I hereby certify that the information herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the Division. <i>Rand French</i> 3/2/11 Signature Date RAND FRENCH Printed Name SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief. MARCH 17, 2008 Date Surveyed LA Signature & Seal of Professional Surveyor Certificate No. GARY G. EIDSON 12641 RONALD J. EIDSON 3239
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Project: Lea County(NAD27)
Site: B-52 Federal
Well: #2H
Wellbore: OH
Plan: Plan #1 (#2H/OH)

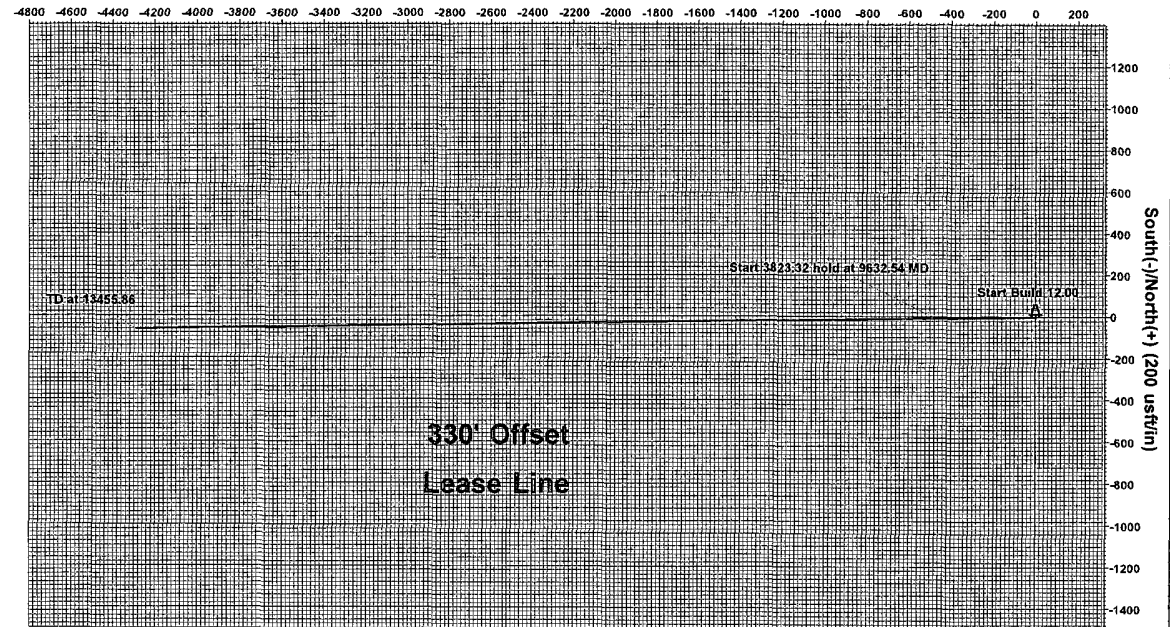


Azimuths to Grid North
True North: -0.30°
Magnetic North: 7.44°

Magnetic Field
Strength: 48893.3snT
Dip Angle: 60.59°
Date: 04/13/2011
Model: IGRF2010

PATHFINDER
A Schlumberger Company

West(-)/East(+) (200 usft/in)



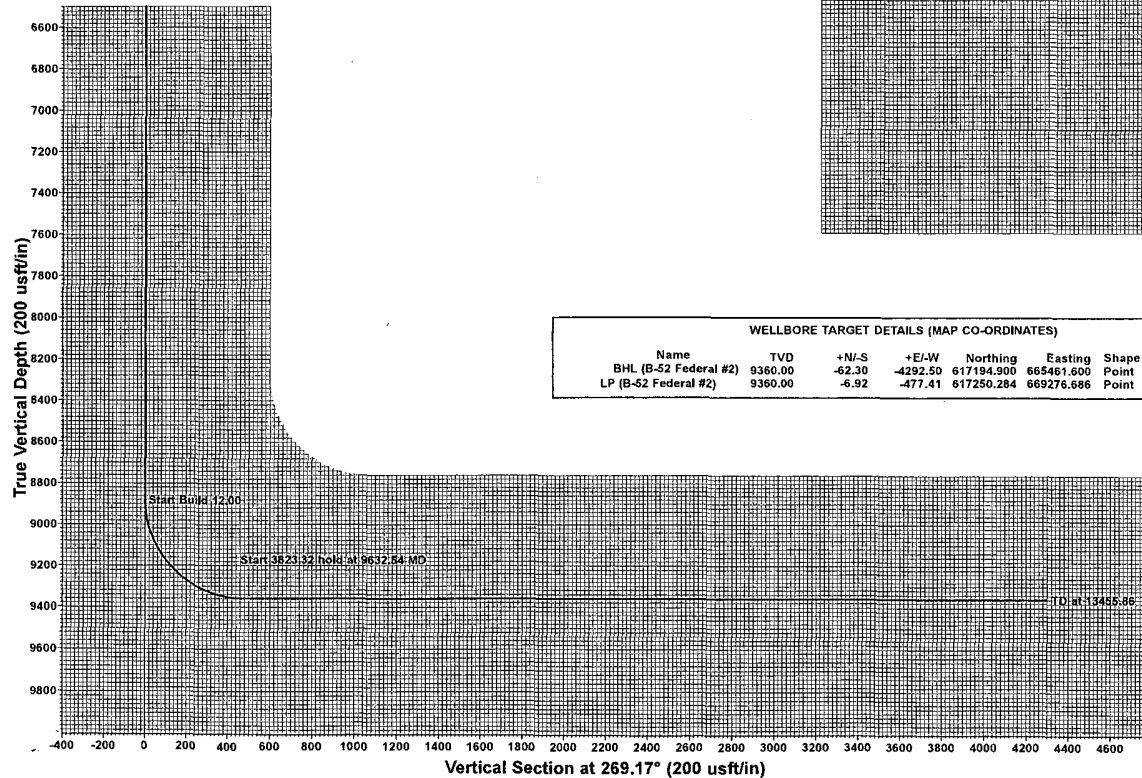
WELL DETAILS: #2H

Ground Elevation: 3676.00
RKB Elevation: KB=18' @ 3694.00usft (Original Well Elev)
Rig Name: Original Well Elev

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	617257.200	669754.100	32° 41' 44.609 N	103° 46' 53.496 W	

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
8882.54	0.00	0.00	8882.54	0.00	0.00	0.00	0.00	0.00	
9632.54	90.00	269.17	9360.00	-6.92	-477.41	12.00	269.17	477.46	
13448.03	90.00	269.17	9360.00	-62.19	-4292.50	0.00	0.00	4292.95	BHL (B-52 Federal #2)



WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
BHL (B-52 Federal #2)	9360.00	-62.30	-4292.50	617194.900	665461.600	Point
LP (B-52 Federal #2)	9360.00	-6.92	-477.41	617250.284	669276.686	Point

PROJECT DETAILS: Lea County(NAD27)
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001
System Datum: Mean Sea Level
Local North: Grid

Plan: Plan #1 (#2H/OH)

Created By: Nate Bingham Date: 13.07, April 13 2011

Checked: _____ Date: _____



COG Operating LLC

Lea County(NAD27)

B-52 Federal

#2H

OH

Plan: Plan #1

Pathfinder X & Y Planning Report

13 April, 2011





Pathfinder
Pathfinder X & Y Planning Report



Company: COG Operating LLC
Project: Lea County(NAD27)
Site: B-52 Federal
Well: #2H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #2H
TVD Reference: KB=18' @ 3694.00usft (Original Well Elev)
MD Reference: KB=18' @ 3694.00usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Project	Lea County(NAD27)		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	B-52 Federal		
Site Position:		Northing:	617,257.200 usft
From:	Map	Easting:	669,754.100 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 41' 44.609 N
		Longitude:	103° 46' 53.496 W
		Grid Convergence:	0.30 °

Well	#2H		
Well Position	+N/-S	0.00 usft	Northing: 617,257.200 usft
	+E/-W	0.00 usft	Easting: 669,754.100 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 41' 44.609 N
		Longitude:	103° 46' 53.496 W
		Ground Level:	3,676.00 usft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
	IGRF2010	04/13/11	(°)
			7.74
		Dip Angle	(°)
		60.59	
		Field Strength	(nT)
			48,893

Design	Plan #1		
Audit Notes:			
Version:	Phase:	PROTOTYPE	Tie On Depth: 0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction
			(°)
			269.17

Survey Tool Program	Date		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		Description
0.00	13,448.03	Plan #1 (OH)	



Pathfinder
Pathfinder X & Y Planning Report



Company: COG Operating LLC
Project: Lea County(NAD27)
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Wellbore: OH
Design: Plan #1

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MD Reference: KB=18' @ 3694.00usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
0.00	0.00	0.00	0.00	3,694.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
100.00	0.00	0.00	100.00	3,594.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
200.00	0.00	0.00	200.00	3,494.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
300.00	0.00	0.00	300.00	3,394.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
400.00	0.00	0.00	400.00	3,294.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
500.00	0.00	0.00	500.00	3,194.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
600.00	0.00	0.00	600.00	3,094.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
700.00	0.00	0.00	700.00	2,994.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
800.00	0.00	0.00	800.00	2,894.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
900.00	0.00	0.00	900.00	2,794.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
1,000.00	0.00	0.00	1,000.00	2,694.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
1,100.00	0.00	0.00	1,100.00	2,594.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
1,200.00	0.00	0.00	1,200.00	2,494.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
1,300.00	0.00	0.00	1,300.00	2,394.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
1,400.00	0.00	0.00	1,400.00	2,294.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
1,500.00	0.00	0.00	1,500.00	2,194.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
1,600.00	0.00	0.00	1,600.00	2,094.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
1,700.00	0.00	0.00	1,700.00	1,994.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
1,800.00	0.00	0.00	1,800.00	1,894.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
1,900.00	0.00	0.00	1,900.00	1,794.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
2,000.00	0.00	0.00	2,000.00	1,694.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
2,100.00	0.00	0.00	2,100.00	1,594.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
2,200.00	0.00	0.00	2,200.00	1,494.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
2,300.00	0.00	0.00	2,300.00	1,394.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
2,400.00	0.00	0.00	2,400.00	1,294.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
2,500.00	0.00	0.00	2,500.00	1,194.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
2,600.00	0.00	0.00	2,600.00	1,094.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10



Pathfinder
Pathfinder X & Y Planning Report



Company: COG Operating LLC
Project: Lea County(NAD27)
Site: B-52 Federal
Well: #2H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #2H
TVD Reference: KB=18' @ 3694.00usft (Original Well Elev)
MD Reference: KB=18' @ 3694.00usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
2,700.00	0.00	0.00	2,700.00	994.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
2,800.00	0.00	0.00	2,800.00	894.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
2,900.00	0.00	0.00	2,900.00	794.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
3,000.00	0.00	0.00	3,000.00	694.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
3,100.00	0.00	0.00	3,100.00	594.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
3,200.00	0.00	0.00	3,200.00	494.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
3,300.00	0.00	0.00	3,300.00	394.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
3,400.00	0.00	0.00	3,400.00	294.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
3,500.00	0.00	0.00	3,500.00	194.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
3,600.00	0.00	0.00	3,600.00	94.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
3,700.00	0.00	0.00	3,700.00	-6.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
3,800.00	0.00	0.00	3,800.00	-106.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
3,900.00	0.00	0.00	3,900.00	-206.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
4,000.00	0.00	0.00	4,000.00	-306.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
4,100.00	0.00	0.00	4,100.00	-406.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
4,200.00	0.00	0.00	4,200.00	-506.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
4,300.00	0.00	0.00	4,300.00	-606.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
4,400.00	0.00	0.00	4,400.00	-706.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
4,500.00	0.00	0.00	4,500.00	-806.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
4,600.00	0.00	0.00	4,600.00	-906.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
4,700.00	0.00	0.00	4,700.00	-1,006.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
4,800.00	0.00	0.00	4,800.00	-1,106.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
4,900.00	0.00	0.00	4,900.00	-1,206.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
5,000.00	0.00	0.00	5,000.00	-1,306.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
5,100.00	0.00	0.00	5,100.00	-1,406.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
5,200.00	0.00	0.00	5,200.00	-1,506.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
5,300.00	0.00	0.00	5,300.00	-1,606.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10



Pathfinder
Pathfinder X & Y Planning Report



Company: COG Operating LLC
Project: Lea County(NAD27)
Site: B-52 Federal
Well: #2H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #2H
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5,400.00	0.00	0.00	5,400.00	-1,706.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
5,500.00	0.00	0.00	5,500.00	-1,806.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
5,600.00	0.00	0.00	5,600.00	-1,906.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
5,700.00	0.00	0.00	5,700.00	-2,006.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
5,800.00	0.00	0.00	5,800.00	-2,106.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
5,900.00	0.00	0.00	5,900.00	-2,206.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
6,000.00	0.00	0.00	6,000.00	-2,306.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
6,100.00	0.00	0.00	6,100.00	-2,406.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
6,200.00	0.00	0.00	6,200.00	-2,506.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
6,300.00	0.00	0.00	6,300.00	-2,606.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
6,400.00	0.00	0.00	6,400.00	-2,706.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
6,500.00	0.00	0.00	6,500.00	-2,806.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
6,600.00	0.00	0.00	6,600.00	-2,906.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
6,700.00	0.00	0.00	6,700.00	-3,006.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
6,800.00	0.00	0.00	6,800.00	-3,106.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
6,900.00	0.00	0.00	6,900.00	-3,206.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
7,000.00	0.00	0.00	7,000.00	-3,306.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
7,100.00	0.00	0.00	7,100.00	-3,406.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
7,200.00	0.00	0.00	7,200.00	-3,506.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
7,300.00	0.00	0.00	7,300.00	-3,606.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
7,400.00	0.00	0.00	7,400.00	-3,706.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
7,500.00	0.00	0.00	7,500.00	-3,806.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
7,600.00	0.00	0.00	7,600.00	-3,906.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
7,700.00	0.00	0.00	7,700.00	-4,006.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
7,800.00	0.00	0.00	7,800.00	-4,106.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
7,900.00	0.00	0.00	7,900.00	-4,206.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
8,000.00	0.00	0.00	8,000.00	-4,306.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10



Pathfinder
Pathfinder X & Y Planning Report



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Wellbore: OH
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MD Reference: KB=18' @ 3694.00usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
8,100.00	0.00	0.00	8,100.00	-4,406.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
8,200.00	0.00	0.00	8,200.00	-4,506.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
8,300.00	0.00	0.00	8,300.00	-4,606.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
8,400.00	0.00	0.00	8,400.00	-4,706.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
8,500.00	0.00	0.00	8,500.00	-4,806.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
8,600.00	0.00	0.00	8,600.00	-4,906.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
8,700.00	0.00	0.00	8,700.00	-5,006.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
8,800.00	0.00	0.00	8,800.00	-5,106.00	0.00	0.00	0.00	0.00	617,257.20	669,754.10
8,882.54	0.00	0.00	8,882.54	-5,188.54	0.00	0.00	0.00	0.00	617,257.20	669,754.10
8,900.00	2.10	269.17	8,900.00	-5,206.00	0.00	-0.32	0.32	12.00	617,257.20	669,753.78
8,925.00	5.10	269.17	8,924.94	-5,230.94	-0.03	-1.89	1.89	12.00	617,257.17	669,752.21
8,950.00	8.10	269.17	8,949.78	-5,255.78	-0.07	-4.76	4.76	12.00	617,257.13	669,749.34
8,975.00	11.10	269.17	8,974.42	-5,280.42	-0.13	-8.92	8.92	12.00	617,257.07	669,745.18
9,000.00	14.10	269.17	8,998.82	-5,304.82	-0.21	-14.37	14.38	12.00	617,256.99	669,739.73
9,025.00	17.10	269.17	9,022.90	-5,328.90	-0.31	-21.09	21.10	12.00	617,256.89	669,733.01
9,050.00	20.10	269.17	9,046.59	-5,352.59	-0.42	-29.06	29.07	12.00	617,256.78	669,725.04
9,075.00	23.10	269.17	9,069.83	-5,375.83	-0.55	-38.26	38.27	12.00	617,256.65	669,715.84
9,100.00	26.10	269.17	9,092.56	-5,398.56	-0.71	-48.67	48.67	12.00	617,256.49	669,705.43
9,125.00	29.10	269.17	9,114.71	-5,420.71	-0.87	-60.24	60.25	12.00	617,256.33	669,693.86
9,150.00	32.10	269.17	9,136.23	-5,442.23	-1.06	-72.97	72.97	12.00	617,256.14	669,681.13
9,175.00	35.10	269.17	9,157.05	-5,463.05	-1.26	-86.80	86.80	12.00	617,255.94	669,667.30
9,200.00	38.10	269.17	9,177.12	-5,483.12	-1.47	-101.70	101.71	12.00	617,255.73	669,652.40
9,225.00	41.10	269.17	9,196.38	-5,502.38	-1.70	-117.63	117.64	12.00	617,255.50	669,636.47
9,250.00	44.10	269.17	9,214.79	-5,520.79	-1.95	-134.54	134.56	12.00	617,255.25	669,619.56
9,275.00	47.10	269.17	9,232.28	-5,538.28	-2.21	-152.40	152.42	12.00	617,254.99	669,601.70
9,300.00	50.10	269.17	9,248.81	-5,554.81	-2.48	-171.15	171.16	12.00	617,254.72	669,582.95
9,325.00	53.10	269.17	9,264.34	-5,570.34	-2.76	-190.73	190.75	12.00	617,254.44	669,563.37



Pathfinder
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MD (usft)	Inc (°)	Azi (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
9,350.00	56.10	269.17	9,278.82	-5,584.82	-3.06	-211.11	211.13	12.00	617,254.14	669,542.99
9,375.00	59.10	269.17	9,292.21	-5,598.21	-3.36	-232.21	232.23	12.00	617,253.84	669,521.89
9,400.00	62.10	269.17	9,304.49	-5,610.49	-3.68	-253.98	254.01	12.00	617,253.52	669,500.12
9,425.00	65.10	269.17	9,315.60	-5,621.60	-4.00	-276.37	276.40	12.00	617,253.20	669,477.73
9,450.00	68.10	269.17	9,325.53	-5,631.53	-4.34	-299.31	299.34	12.00	617,252.86	669,454.79
9,475.00	71.10	269.17	9,334.25	-5,640.25	-4.68	-322.73	322.77	12.00	617,252.52	669,431.37
9,500.00	74.10	269.17	9,341.73	-5,647.73	-5.02	-346.58	346.62	12.00	617,252.18	669,407.52
9,525.00	77.10	269.17	9,347.94	-5,653.94	-5.37	-370.79	370.83	12.00	617,251.83	669,383.31
9,550.00	80.10	269.17	9,352.89	-5,658.89	-5.73	-395.29	395.34	12.00	617,251.47	669,358.81
9,575.00	83.10	269.17	9,356.54	-5,662.54	-6.08	-420.02	420.06	12.00	617,251.12	669,334.08
9,600.00	86.10	269.17	9,358.90	-5,664.90	-6.45	-444.90	444.95	12.00	617,250.75	669,309.20
9,625.00	89.10	269.17	9,359.94	-5,665.94	-6.81	-469.88	469.93	12.00	617,250.39	669,284.22
9,632.54	90.00	269.17	9,360.00	-5,666.00	-6.92	-477.41	477.46	12.00	617,250.28	669,276.69
LP (B-52 Federal #2)										
9,700.00	90.00	269.17	9,360.00	-5,666.00	-7.89	-544.87	544.93	0.00	617,249.31	669,209.23
9,800.00	90.00	269.17	9,360.00	-5,666.00	-9.34	-644.86	644.93	0.00	617,247.86	669,109.24
9,900.00	90.00	269.17	9,360.00	-5,666.00	-10.79	-744.85	744.93	0.00	617,246.41	669,009.25
10,000.00	90.00	269.17	9,360.00	-5,666.00	-12.24	-844.84	844.93	0.00	617,244.96	668,909.26
10,100.00	90.00	269.17	9,360.00	-5,666.00	-13.69	-944.83	944.93	0.00	617,243.51	668,809.27
10,200.00	90.00	269.17	9,360.00	-5,666.00	-15.14	-1,044.82	1,044.93	0.00	617,242.06	668,709.28
10,300.00	90.00	269.17	9,360.00	-5,666.00	-16.59	-1,144.81	1,144.93	0.00	617,240.61	668,609.29
10,400.00	90.00	269.17	9,360.00	-5,666.00	-18.03	-1,244.79	1,244.93	0.00	617,239.17	668,509.31
10,500.00	90.00	269.17	9,360.00	-5,666.00	-19.48	-1,344.78	1,344.93	0.00	617,237.72	668,409.32
10,600.00	90.00	269.17	9,360.00	-5,666.00	-20.93	-1,444.77	1,444.93	0.00	617,236.27	668,309.33
10,700.00	90.00	269.17	9,360.00	-5,666.00	-22.38	-1,544.76	1,544.93	0.00	617,234.82	668,209.34
10,800.00	90.00	269.17	9,360.00	-5,666.00	-23.83	-1,644.75	1,644.93	0.00	617,233.37	668,109.35
10,900.00	90.00	269.17	9,360.00	-5,666.00	-25.28	-1,744.74	1,744.93	0.00	617,231.92	668,009.36



Pathfinder
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11,000.00	90.00	269.17	9,360.00	-5,666.00	-26.73	-1,844.73	1,844.93	0.00	617,230.47	667,909.37
11,100.00	90.00	269.17	9,360.00	-5,666.00	-28.17	-1,944.72	1,944.93	0.00	617,229.03	667,809.38
11,200.00	90.00	269.17	9,360.00	-5,666.00	-29.62	-2,044.71	2,044.93	0.00	617,227.58	667,709.39
11,300.00	90.00	269.17	9,360.00	-5,666.00	-31.07	-2,144.70	2,144.93	0.00	617,226.13	667,609.40
11,400.00	90.00	269.17	9,360.00	-5,666.00	-32.52	-2,244.69	2,244.93	0.00	617,224.68	667,509.41
11,500.00	90.00	269.17	9,360.00	-5,666.00	-33.97	-2,344.68	2,344.93	0.00	617,223.23	667,409.42
11,600.00	90.00	269.17	9,360.00	-5,666.00	-35.42	-2,444.67	2,444.93	0.00	617,221.78	667,309.43
11,700.00	90.00	269.17	9,360.00	-5,666.00	-36.87	-2,544.66	2,544.93	0.00	617,220.33	667,209.44
11,800.00	90.00	269.17	9,360.00	-5,666.00	-38.31	-2,644.65	2,644.93	0.00	617,218.89	667,109.45
11,900.00	90.00	269.17	9,360.00	-5,666.00	-39.76	-2,744.64	2,744.93	0.00	617,217.44	667,009.46
12,000.00	90.00	269.17	9,360.00	-5,666.00	-41.21	-2,844.63	2,844.93	0.00	617,215.99	666,909.47
12,100.00	90.00	269.17	9,360.00	-5,666.00	-42.66	-2,944.62	2,944.93	0.00	617,214.54	666,809.48
12,200.00	90.00	269.17	9,360.00	-5,666.00	-44.11	-3,044.61	3,044.93	0.00	617,213.09	666,709.49
12,300.00	90.00	269.17	9,360.00	-5,666.00	-45.56	-3,144.60	3,144.93	0.00	617,211.64	666,609.50
12,400.00	90.00	269.17	9,360.00	-5,666.00	-47.01	-3,244.58	3,244.93	0.00	617,210.19	666,509.52
12,500.00	90.00	269.17	9,360.00	-5,666.00	-48.45	-3,344.57	3,344.93	0.00	617,208.75	666,409.53
12,600.00	90.00	269.17	9,360.00	-5,666.00	-49.90	-3,444.56	3,444.93	0.00	617,207.30	666,309.54
12,700.00	90.00	269.17	9,360.00	-5,666.00	-51.35	-3,544.55	3,544.93	0.00	617,205.85	666,209.55
12,800.00	90.00	269.17	9,360.00	-5,666.00	-52.80	-3,644.54	3,644.93	0.00	617,204.40	666,109.56
12,900.00	90.00	269.17	9,360.00	-5,666.00	-54.25	-3,744.53	3,744.93	0.00	617,202.95	666,009.57
13,000.00	90.00	269.17	9,360.00	-5,666.00	-55.70	-3,844.52	3,844.93	0.00	617,201.50	665,909.58
13,100.00	90.00	269.17	9,360.00	-5,666.00	-57.15	-3,944.51	3,944.93	0.00	617,200.05	665,809.59
13,200.00	90.00	269.17	9,360.00	-5,666.00	-58.59	-4,044.50	4,044.93	0.00	617,198.61	665,709.60
13,300.00	90.00	269.17	9,360.00	-5,666.00	-60.04	-4,144.49	4,144.93	0.00	617,197.16	665,609.61
13,400.00	90.00	269.17	9,360.00	-5,666.00	-61.49	-4,244.48	4,244.93	0.00	617,195.71	665,509.62
13,448.03	90.00	269.17	9,360.00	-5,666.00	-62.19	-4,292.50	4,292.95	0.00	617,195.01	665,461.60

BHL (B-52 Federal #2)



Pathfinder
Pathfinder X & Y Planning Report



Company: COG Operating LLC
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Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #2H
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Checked By: _____	Approved By: _____	Date: _____
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